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# Streamflow and Groundwater Conditions in Rhode Island

October 22, 2020

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Table 2, Rhode Island Drought Indices and Phases

Drought Phase	Palmer Drought Index +	Crop Moisture Index	Precipitation +	Ground Water** +	Stream flow +	Reservoirs**
<b>Normal</b>	-1.0 to -1.99	0.0 to -1.0	Slightly Dry	1 month below normal 1 month below normal	2 consecutive months below normal	Reservoir levels at or near normal for the time of year
<b>Advisory</b>	-2.0 to -2.99	-1.0 to -1.9 Abnormally Dry	2 month cumulative below 65% of normal	At least 2 out of 3 months below normal	3 consecutive months below normal	Small index Reservoirs below normal
<b>Watch</b>	-3.0 to -3.99	-2.0 to -2.9 Excessively Dry	1 of the following criteria met: 3 month cum. <65% or 6 month cum. <70% or 12 month cum. <70%	4-5 consecutive months below normal	At least 4 out of 5 consecutive months below normal	Medium index Reservoirs below normal
<b>Warning</b>	-4.0 and below	> -2.9 Severely Dry	2 out of 3 of the above criteria met: 3 month cum. <65% and 6 month cum. <65% or 6 month cum. <65% and 12 month cum. <65% or 3 month cum. <65% and 12 month cum. <65%	6-7 consecutive months below normal observation wells recording monthly record lows	At least 6 out of 7 consecutive months below normal	Large index reservoirs below normal
<b>Emergency</b>	-4.0 and below	> -2.9 Severely dry	Same criteria as Warning and Previous month was Warning or Emergency	>7 months below normal Observation wells recording monthly record lows	>7 months below normal	Continuation of previous month's conditions

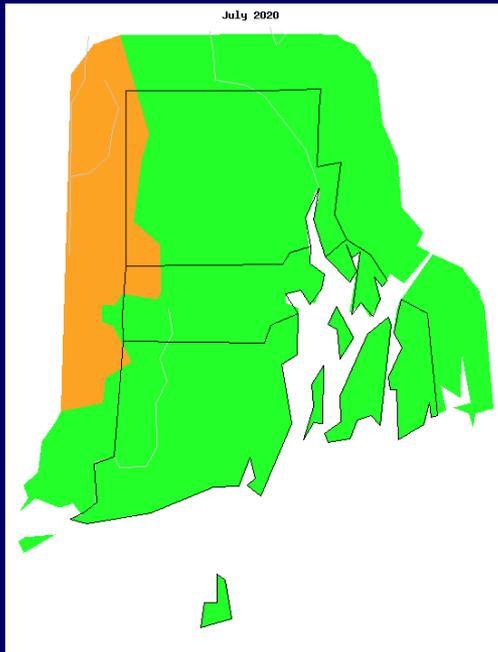
+ Major Hydrologic Indicators.

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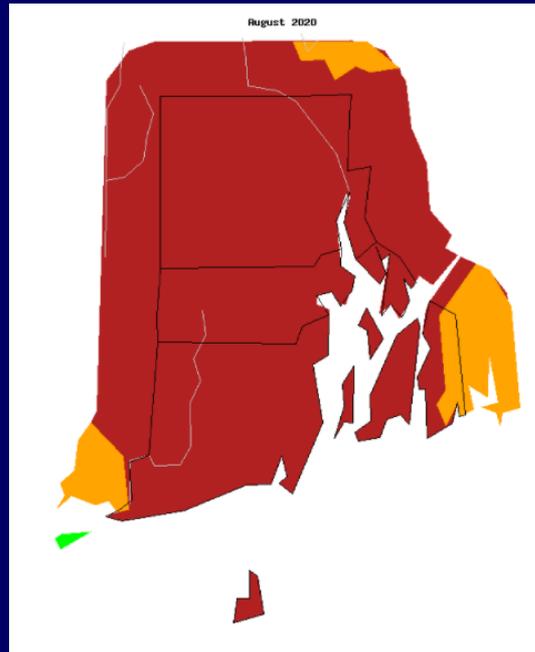
"Normal" is defined as the statistical average of the data for the period of record. Percentages for precipitation are relative to normal.

# Average Streamflow Conditions July – September

July



August



September



Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

# Percent by Drought Region

Drought Region	Number of Gages	June Avg Percentile	July Avg Percentile	August Avg Percentile	September Avg Percentile	October 1-19 Avg Percentile
Central East	4	24.32	25.25	12.52	4.58	10.25
Central West	1	15.15	36.36	3.03	3.03	3.23
North East	4	24.50	35.03	10.26	10.27	16.86
North West	1	44.64	62.50	7.14	5.36	3.57
Southern	11	28.57	26.22	8.53	4.94	3.90

N-Day Data as of October 20, 2020

Drought Region	Number of Gages	7-Day Avg Percentile	14-Day Avg Percentile	28-Day Avg Percentile
Central East	4	53.65	36.24	15.62
Central West	1	32.36	16.09	10.52
North East	4	57.54	40.72	23.32
North West	1	16.35	7.70	3.19
Southern	11	29.45	13.98	6.42

# Statewide Average Percentages

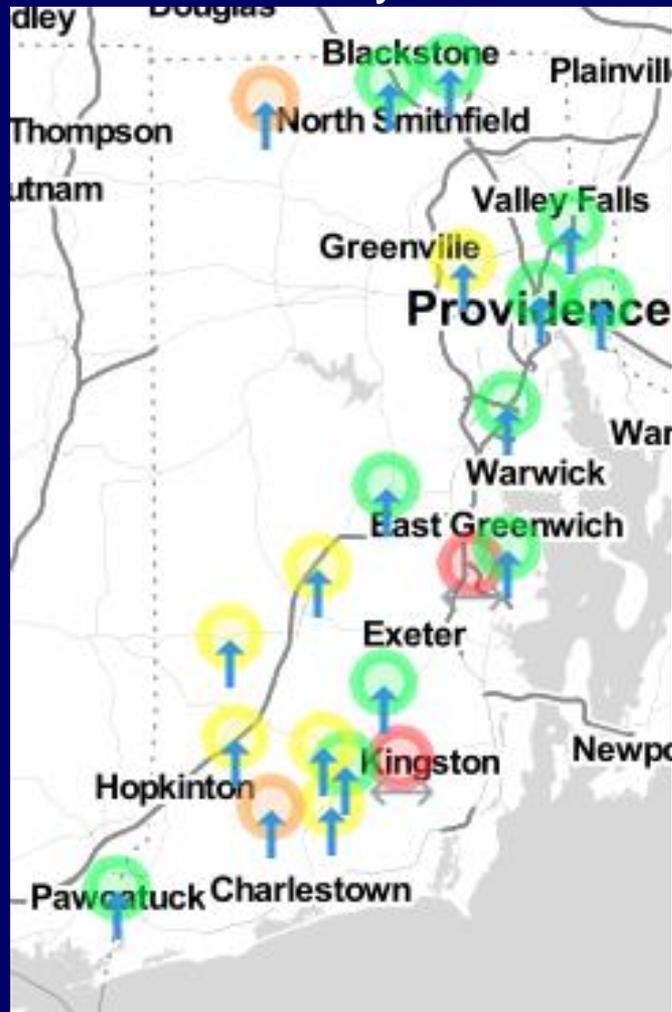
June Avg Percentile	July Avg Percentile	August Avg Percentile	September Avg Percentile	October 1-19 Avg Percentile
27.11	29.92	9.29	5.82	7.53
Low End of Normal	Low End of Normal	Much Below Normal	Much Below Normal	Much Below Normal

Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

# N-Day Maps as of 10/20/2020

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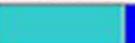
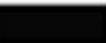
7-Day

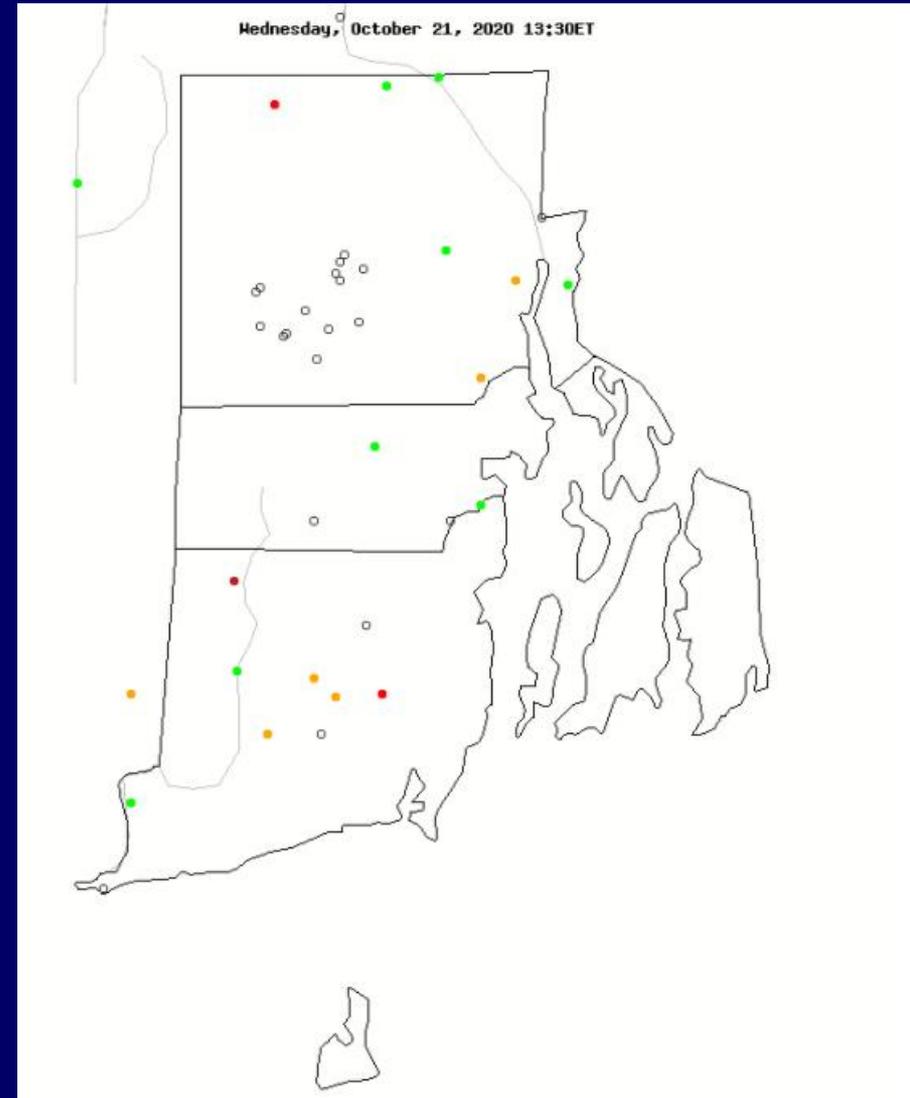


14-Day

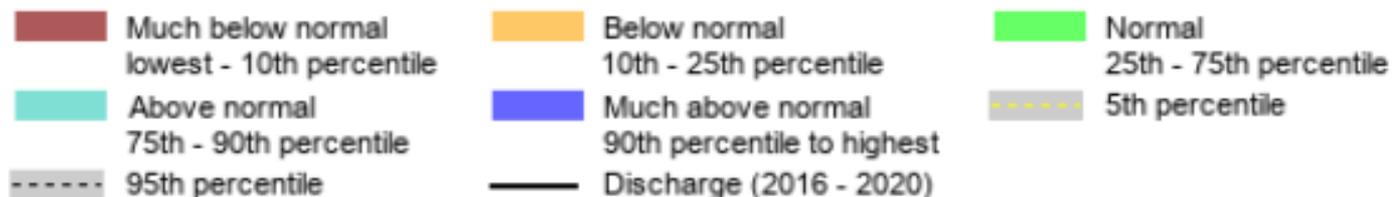
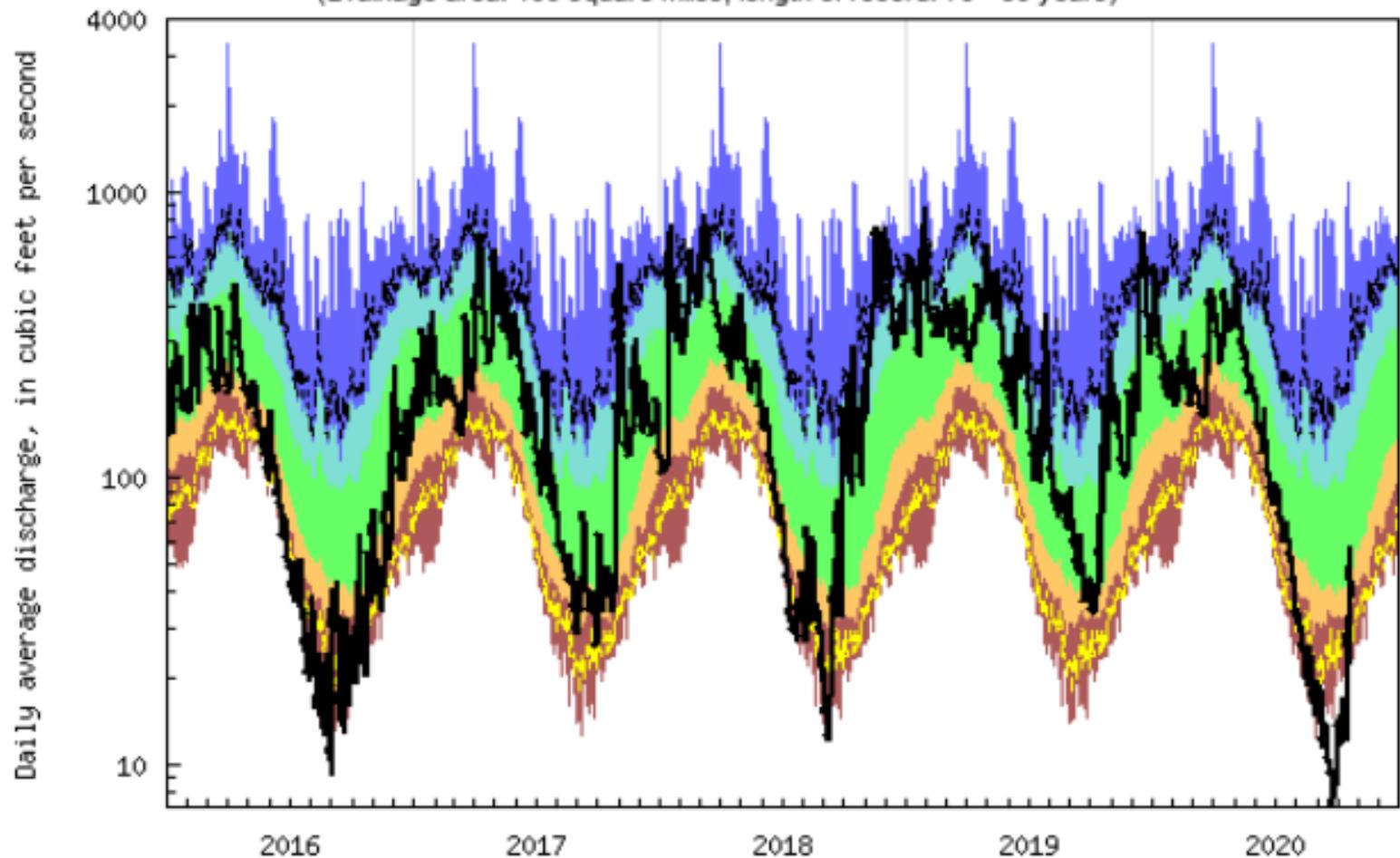


# Current Streamflow Conditions – October 21, 2020

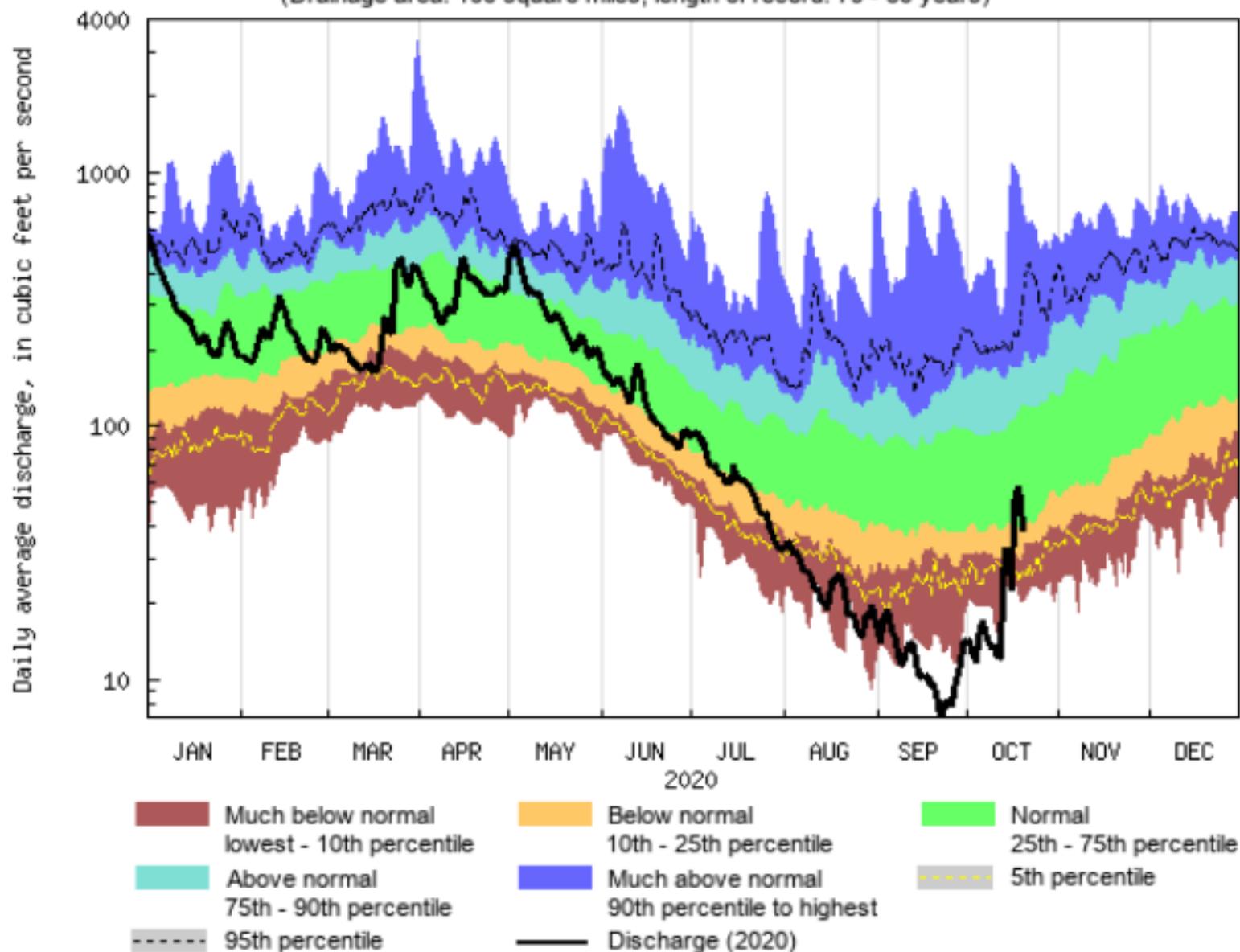
Explanation - Percentile classes							
							
Low	<10	10-24	25-75	76-90	>90	High	
	Much below normal	Below normal	Normal	Above normal	Much above normal		



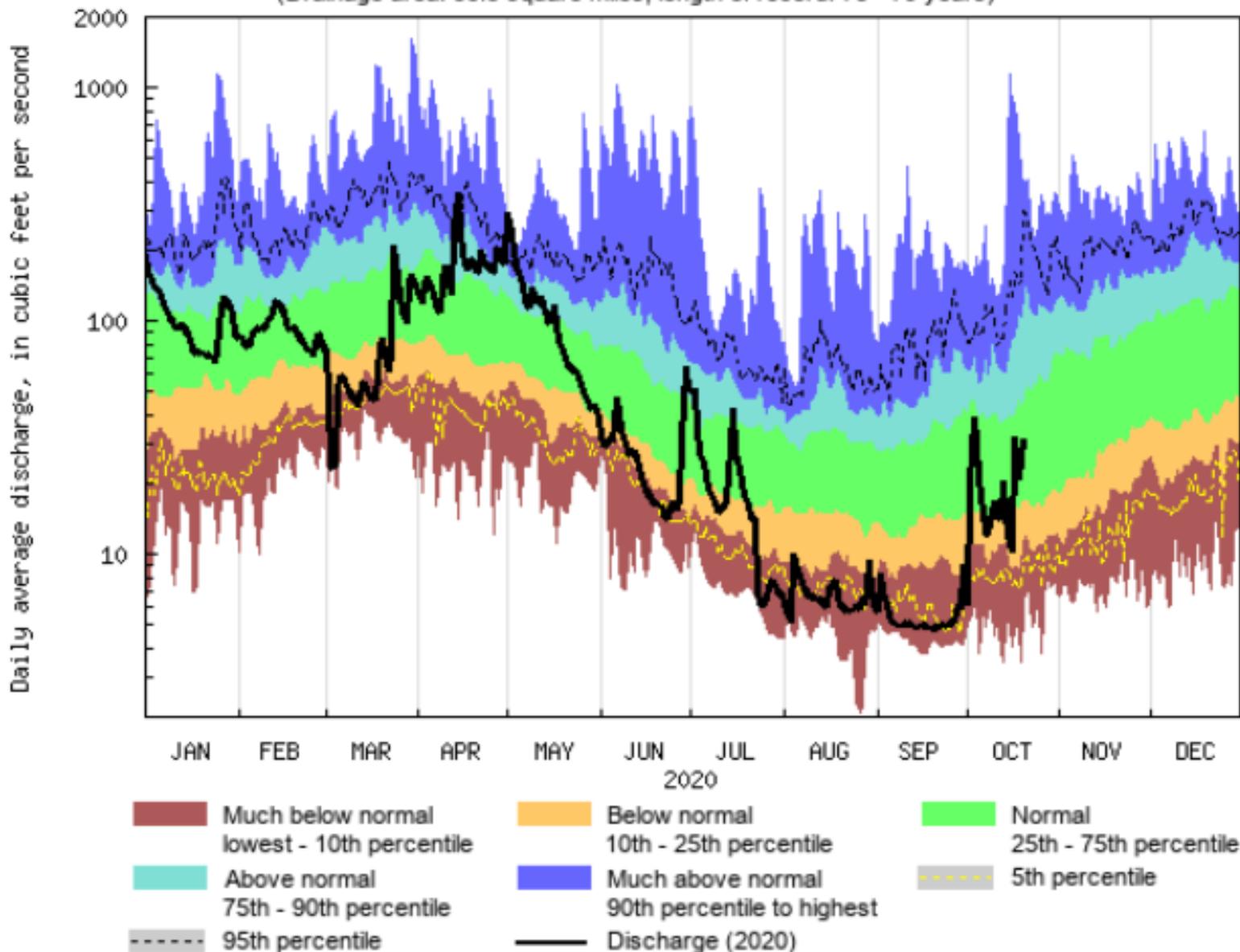
USGS 01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI  
(Drainage area: 100 square miles, length of record: 79 - 80 years)



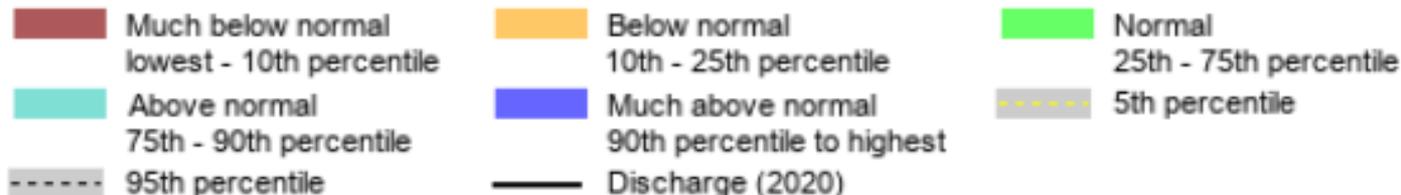
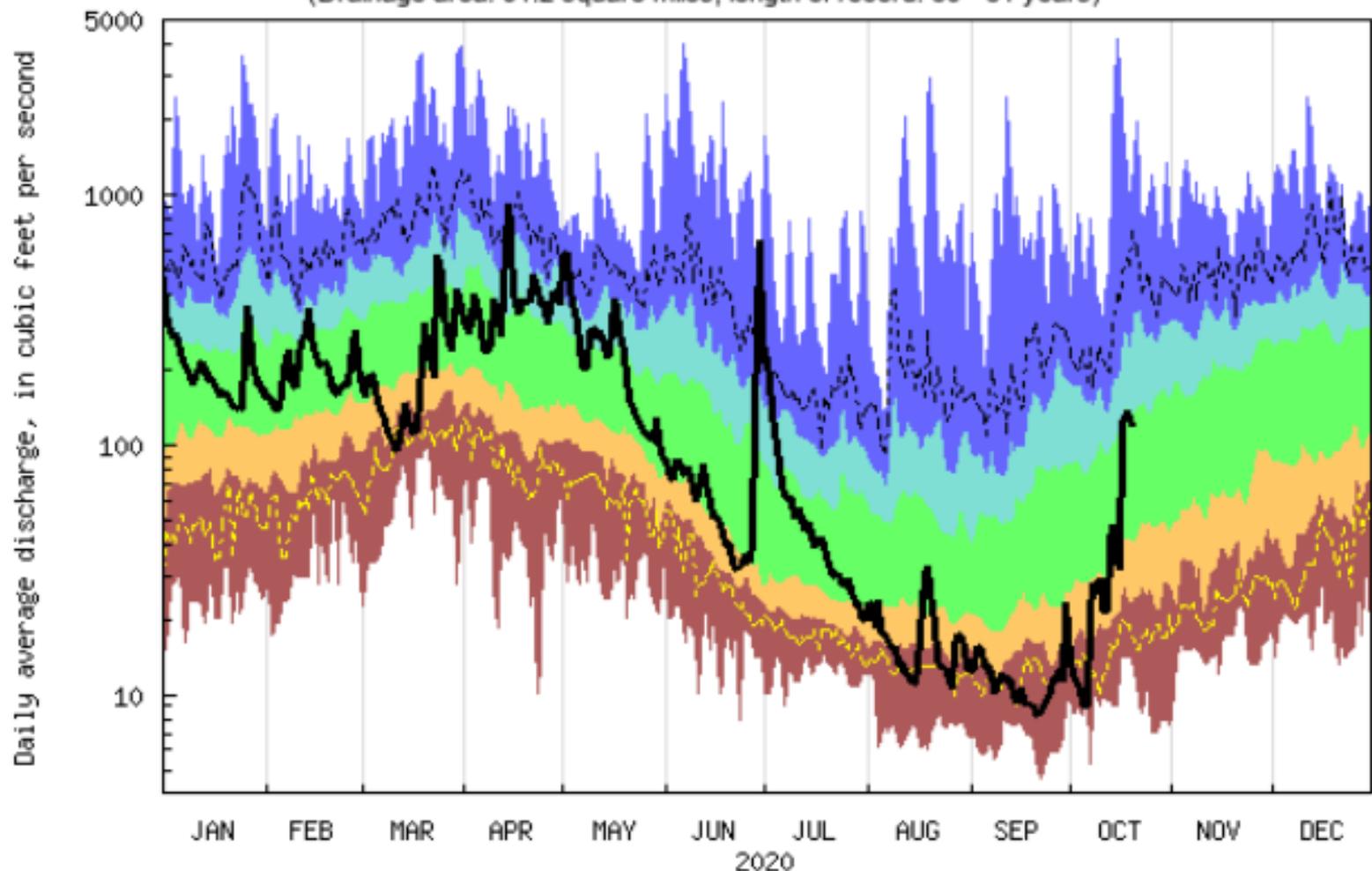
USGS 01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI  
(Drainage area: 100 square miles, length of record: 79 - 80 years)



USGS 01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI  
(Drainage area: 38.3 square miles, length of record: 78 - 79 years)



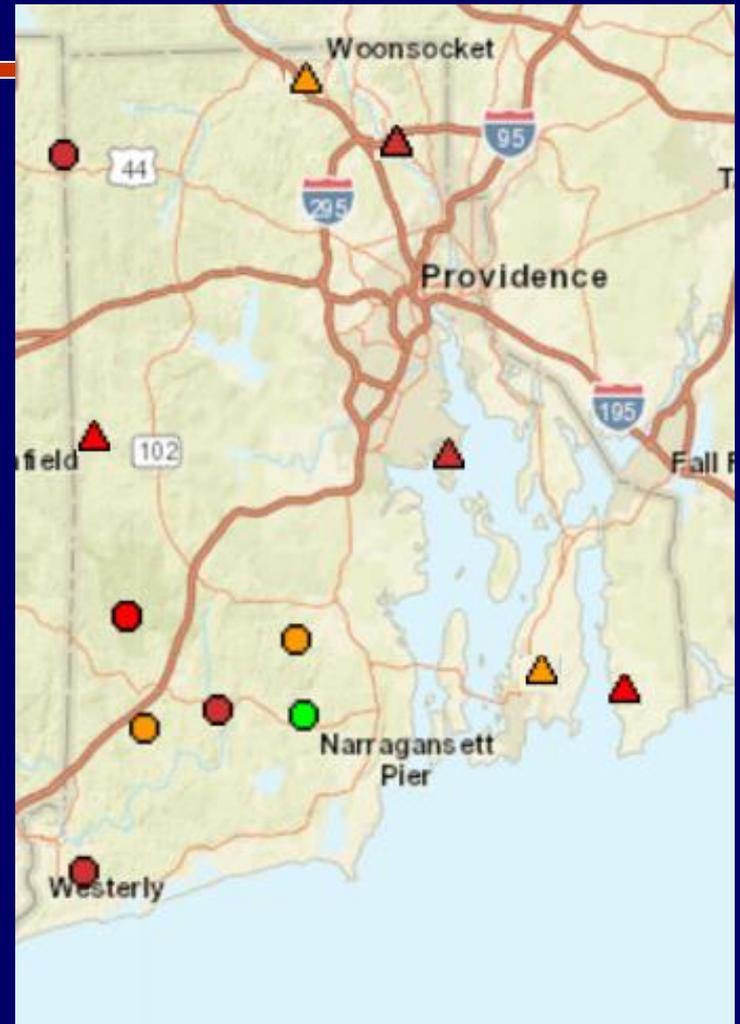
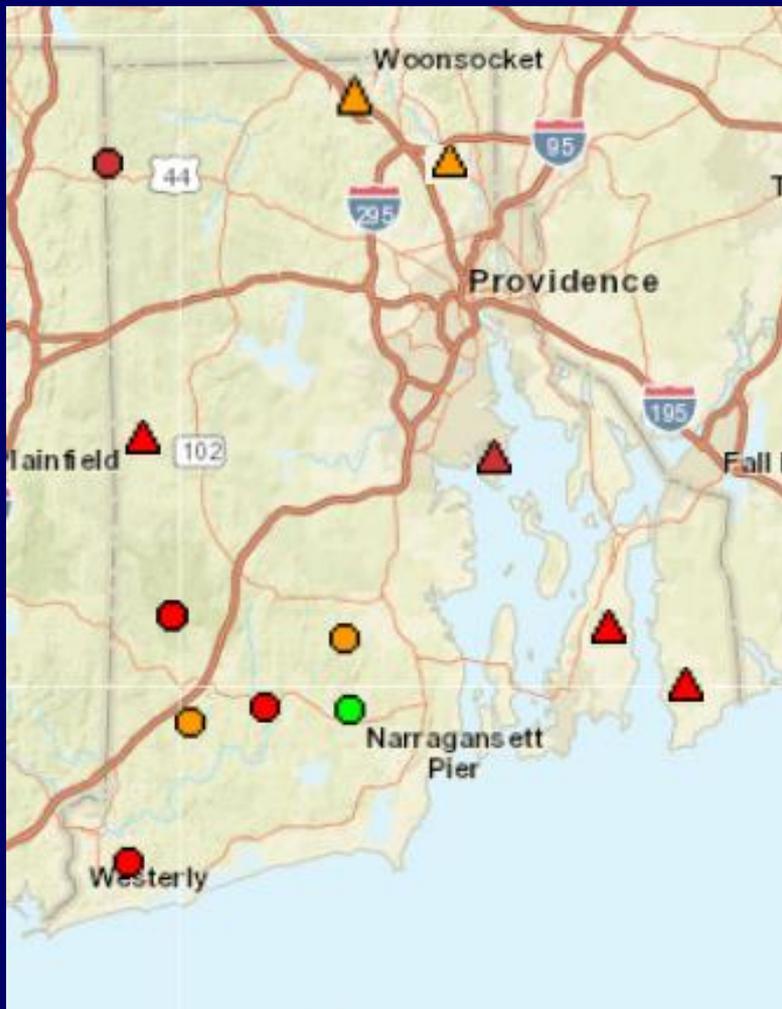
USGS 01111500 BRANCH RIVER AT FORESTDALE, RI  
(Drainage area: 91.2 square miles, length of record: 80 - 81 years)



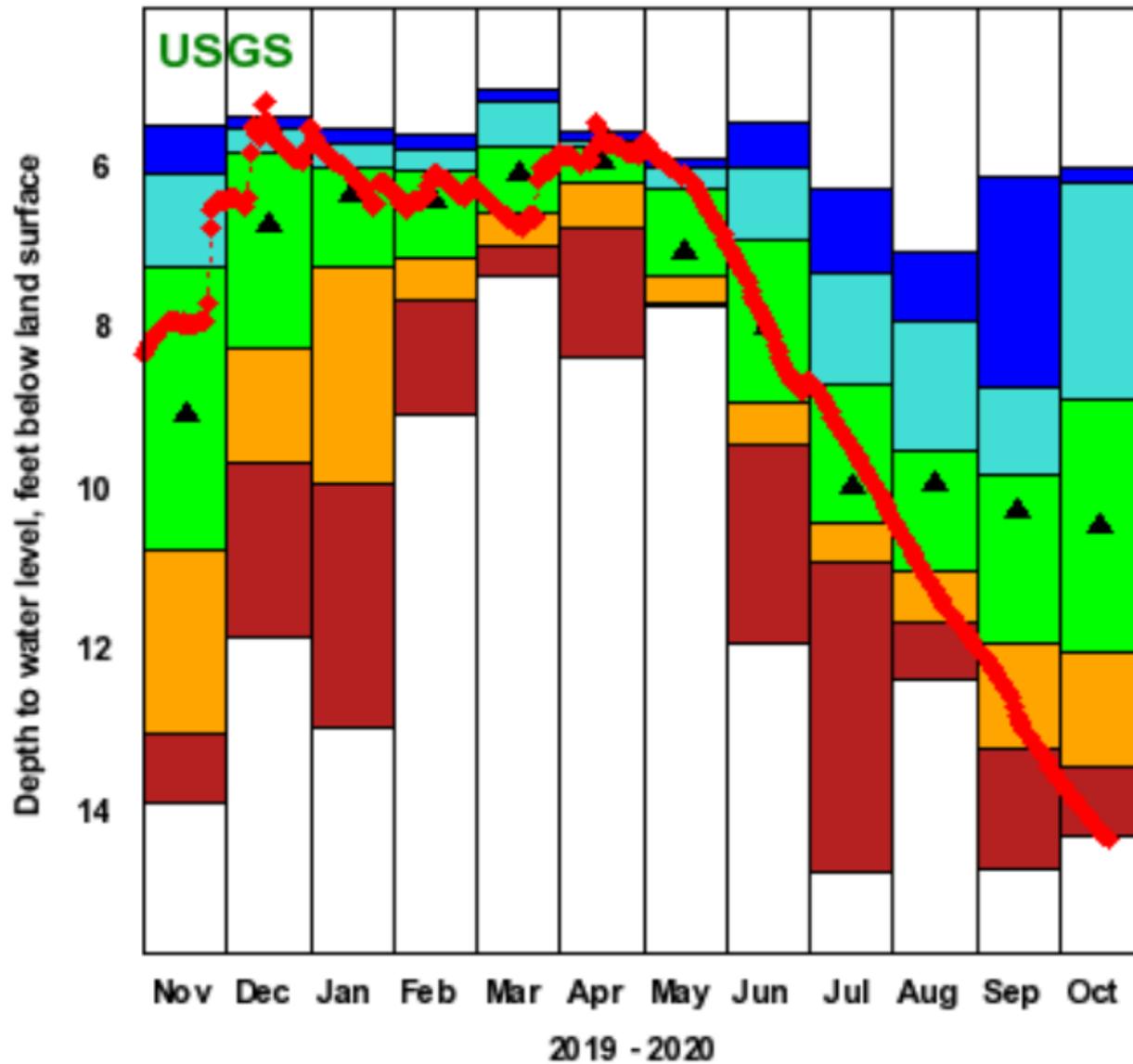
# Groundwater Conditions

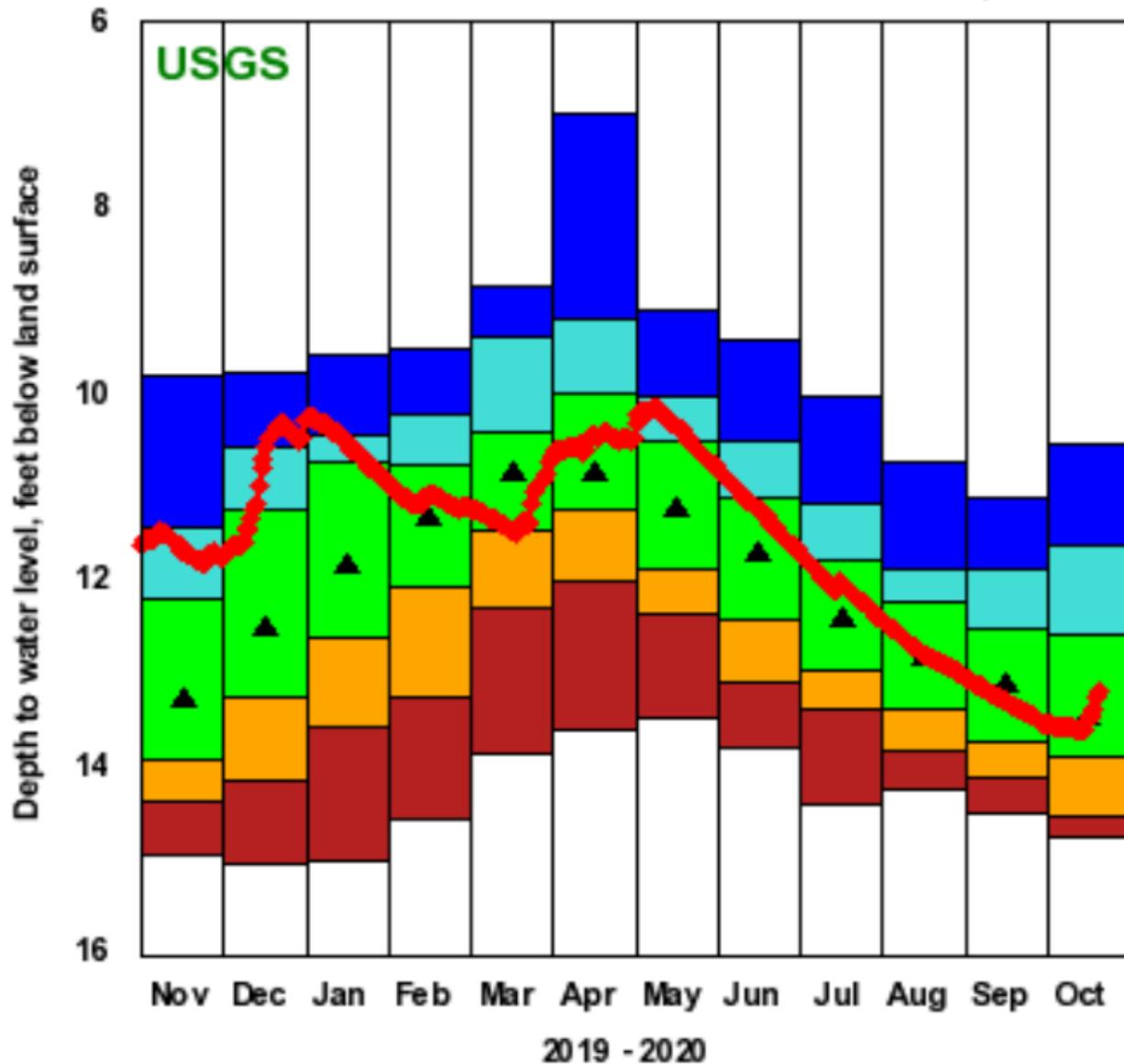
October 1

October 19



Explanation - Percentile classes								○ Real Time	□ Continuous	△ Periodic Measurements
●	●	●	●	●	●	●	●			
New	<10	10-24	25-75	76-90	>90	New	Not			
Low	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal	High	Ranked			

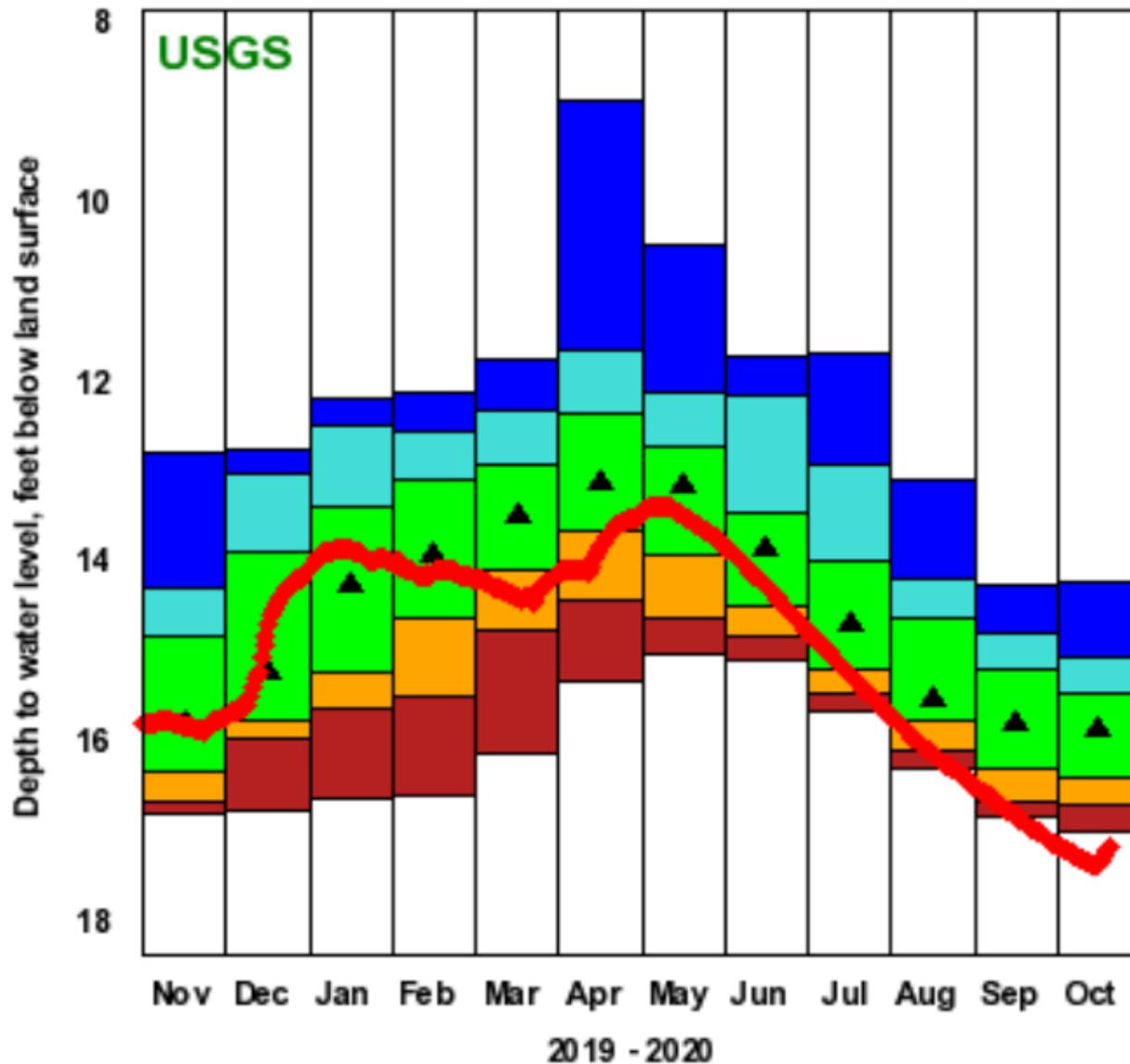




Plot created 10/20/20 21:16

Explanation - Percentile Classes





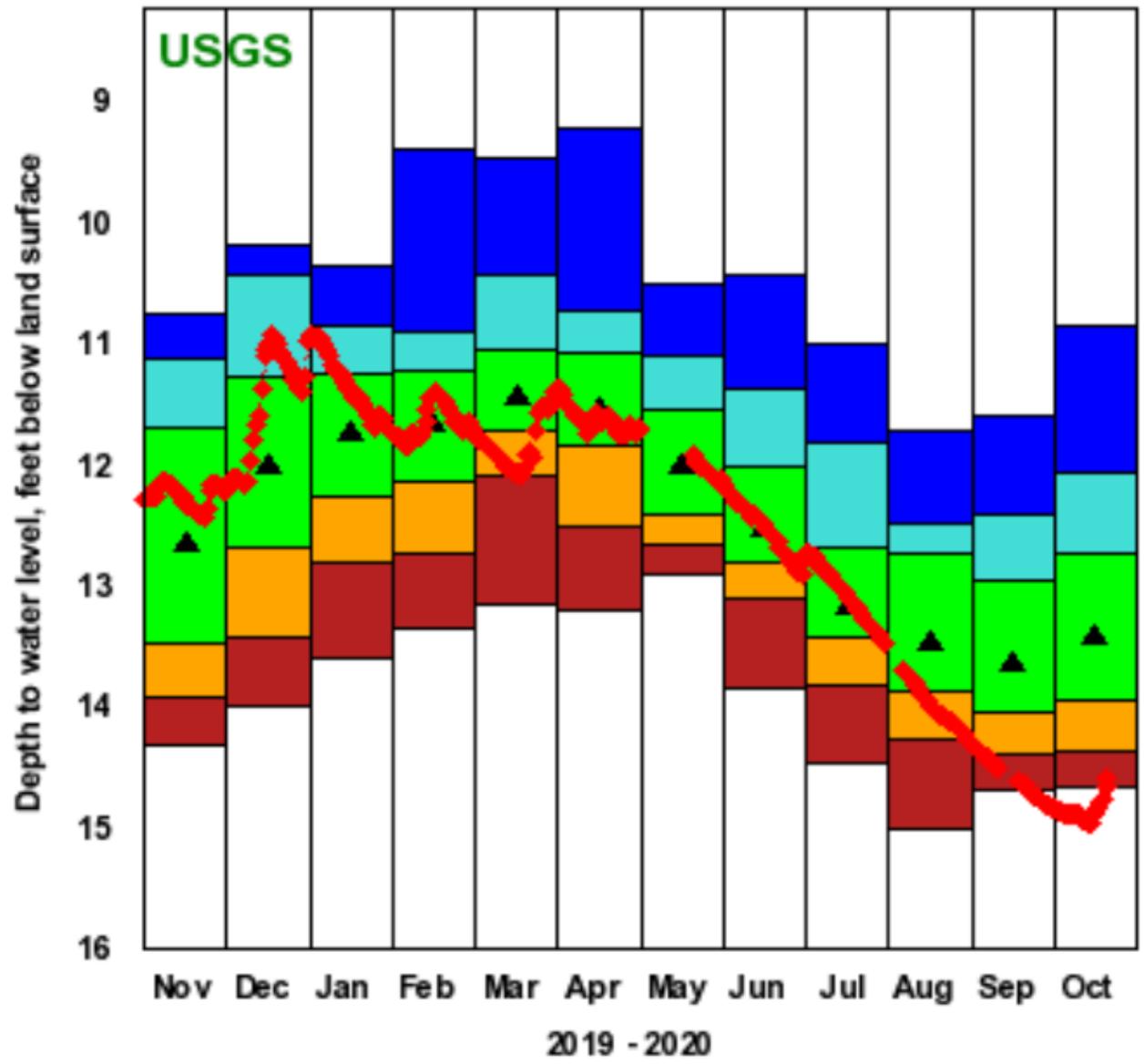
Pbt created 10/20/20 21:17

Explanation - Percentile Classes

◆ Data Point

● < 10   ● 10-24   ● 25-75   ● 76-90   ● > 90

▲ Monthly Median



Explanation - Percentile Classes

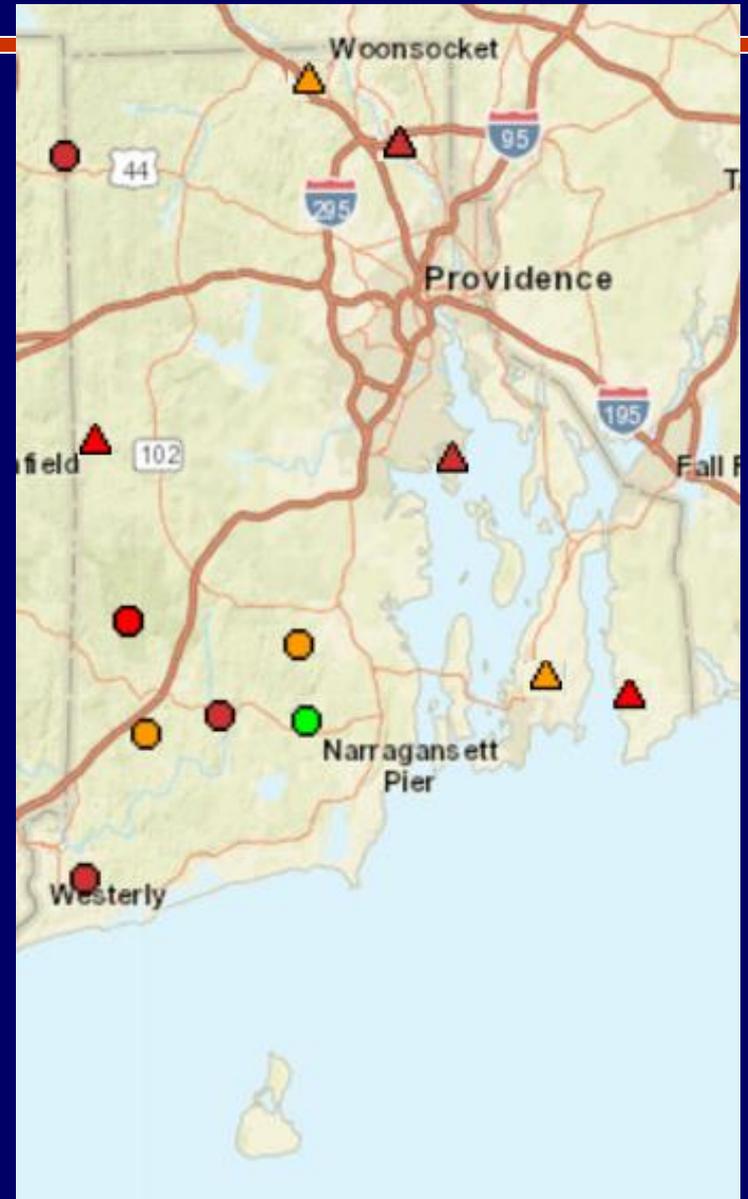
◆ Data Point

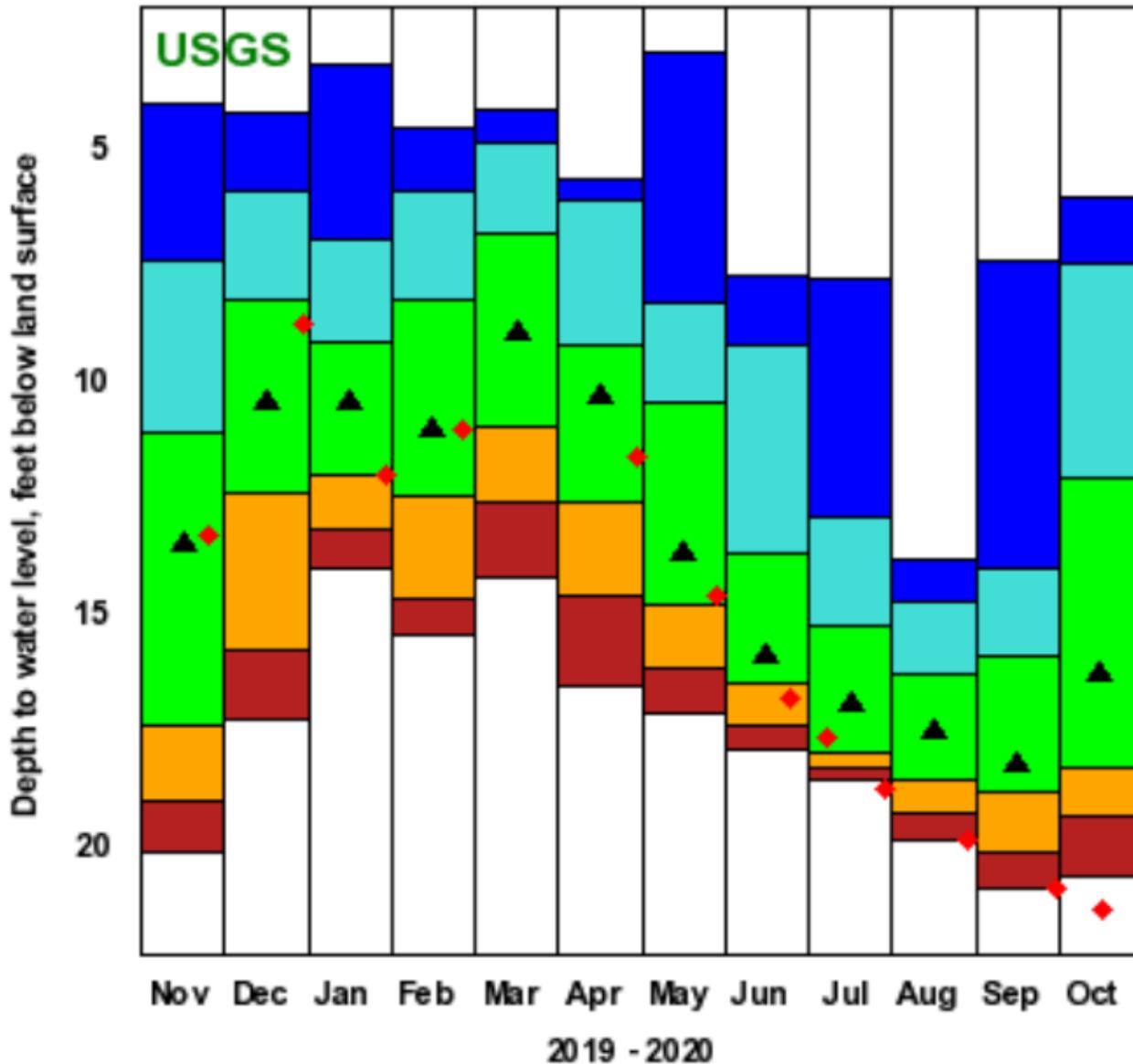
● < 10   ● 10 - 24   ● 25 - 75   ● 76 - 90   ● > 90

▲ Monthly Median

# Groundwater Conditions

Well	Tape down
LTW 142	21.33
POW 551	10.9
COW 342	20.02
WCW 59	DRY
NSW 21	11.96
CUW 265	15.88





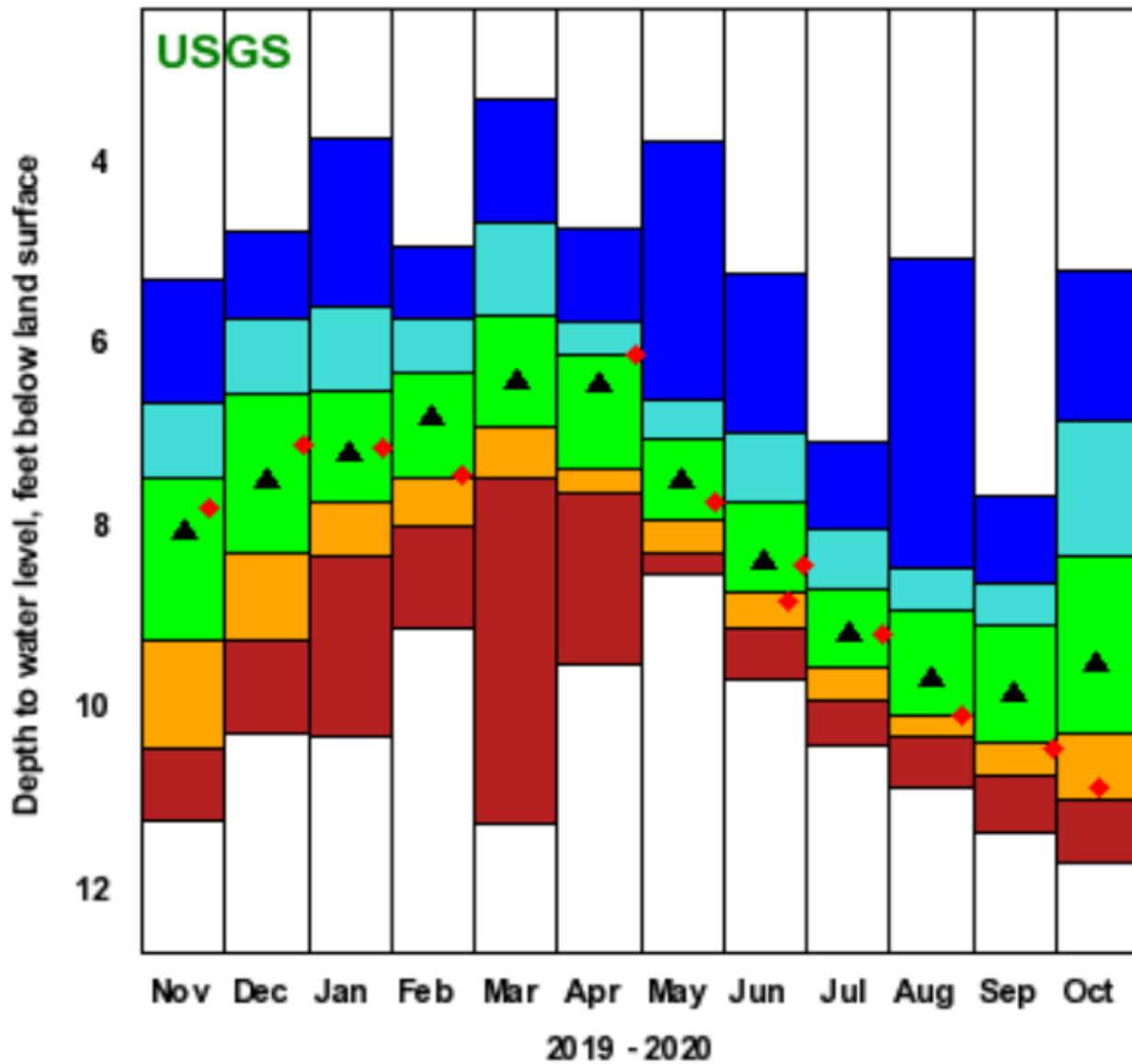
Plot created 10/20/20 21:16

Explanation - Percentile Classes

◆ Data Point

● < 10   ● 10 - 24   ● 25 - 75   ● 76 - 90   ● > 90

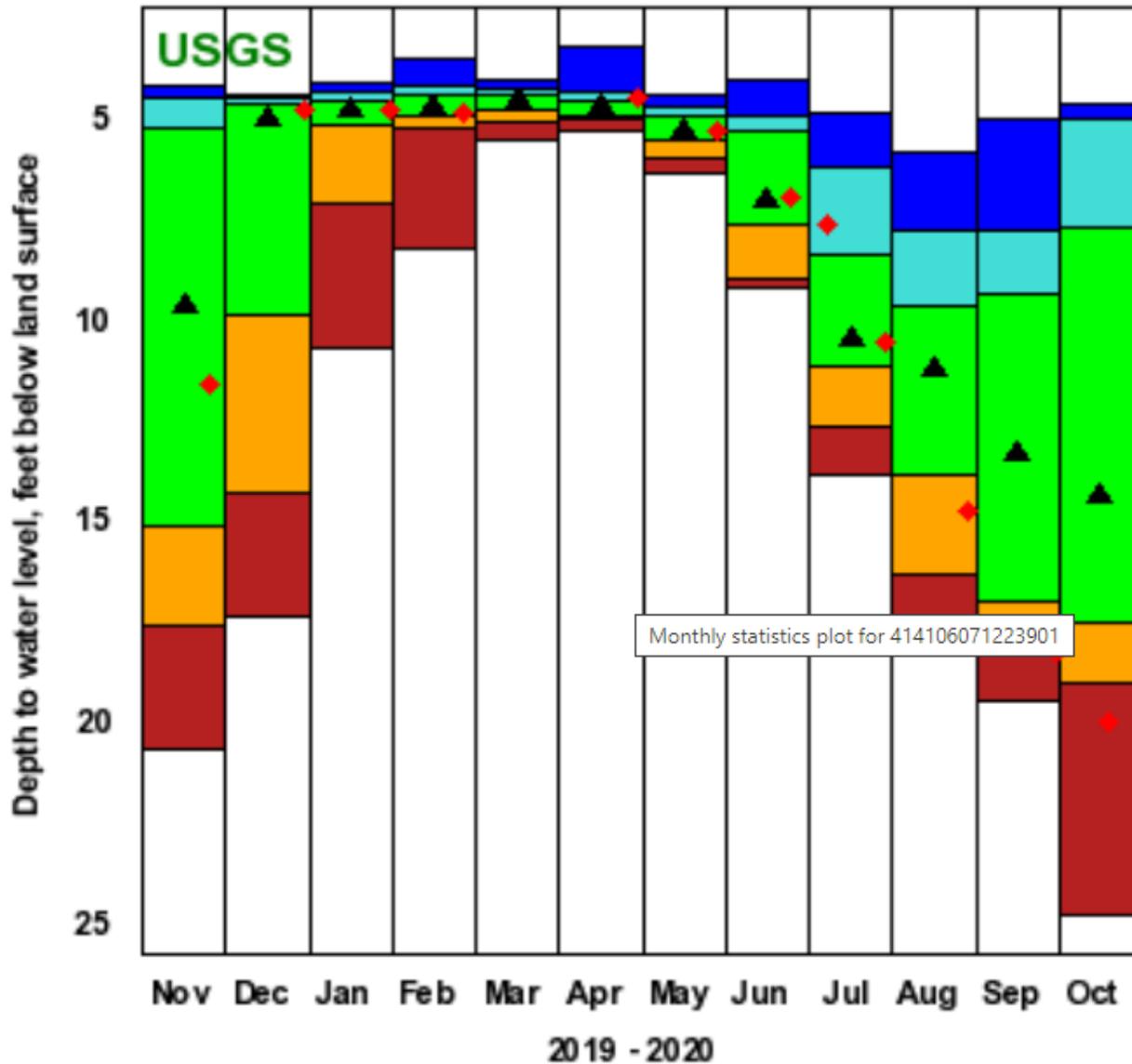
▲ Monthly Median



Plot created 10/20/20 21:17

Explanation - Percentile Classes

◆ Data Point     
 ● <10   
 ● 10-24   
 ● 25-75   
 ● 76-90   
 ● >90     
 ▲ Monthly Median



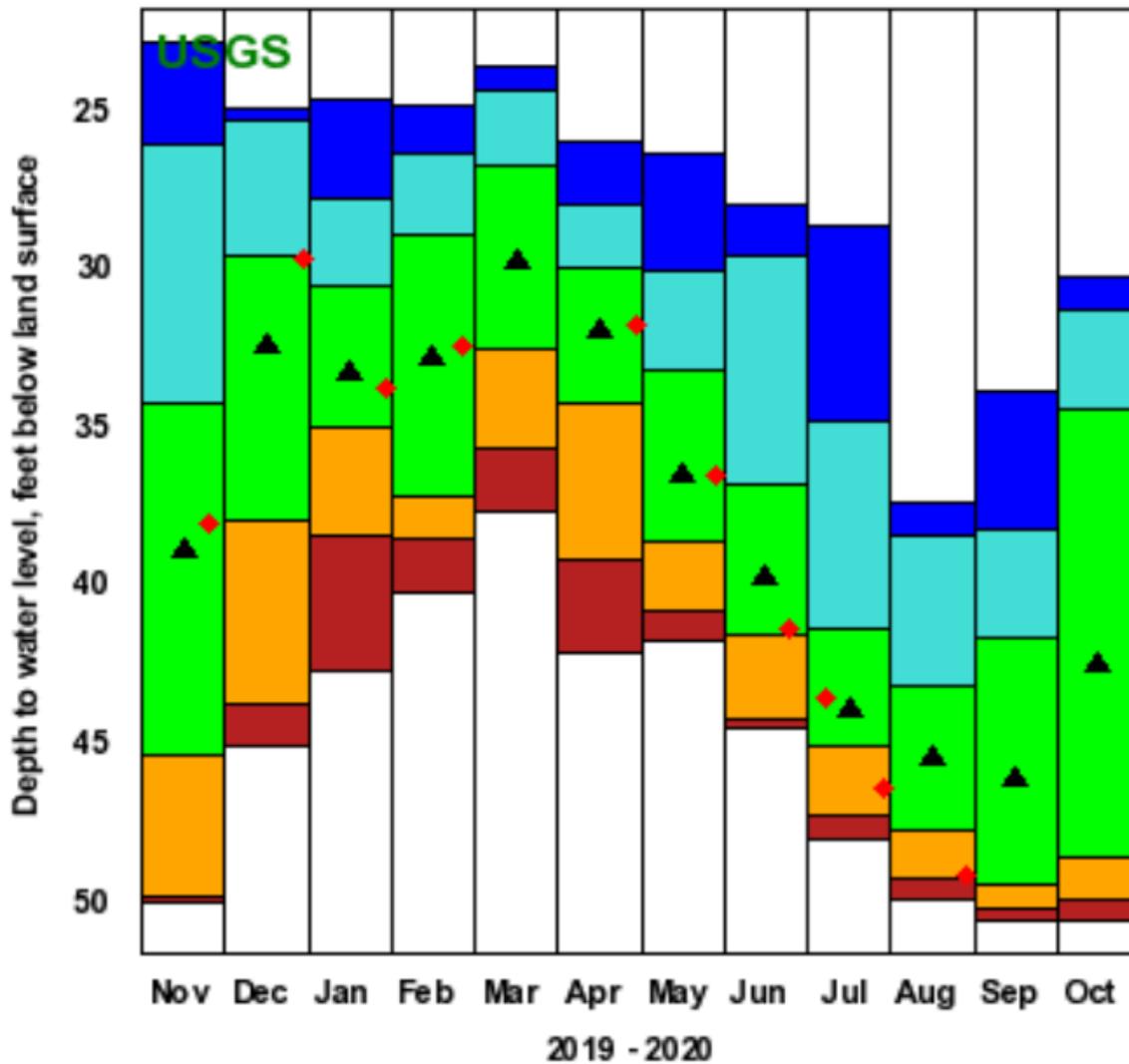
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◆ Data Point

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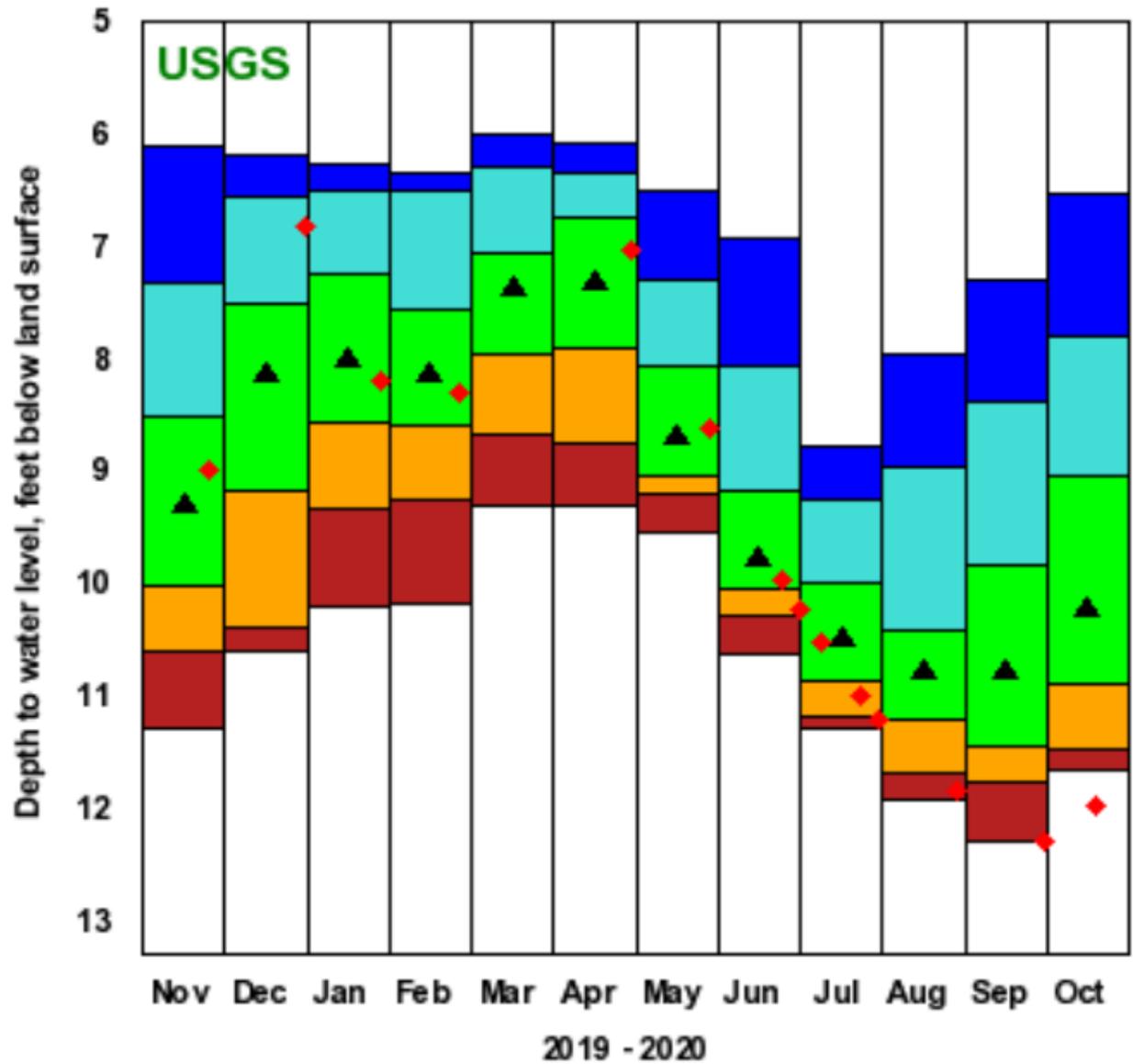


Plot created 10/20/20 21:17

Explanation - Percentile Classes



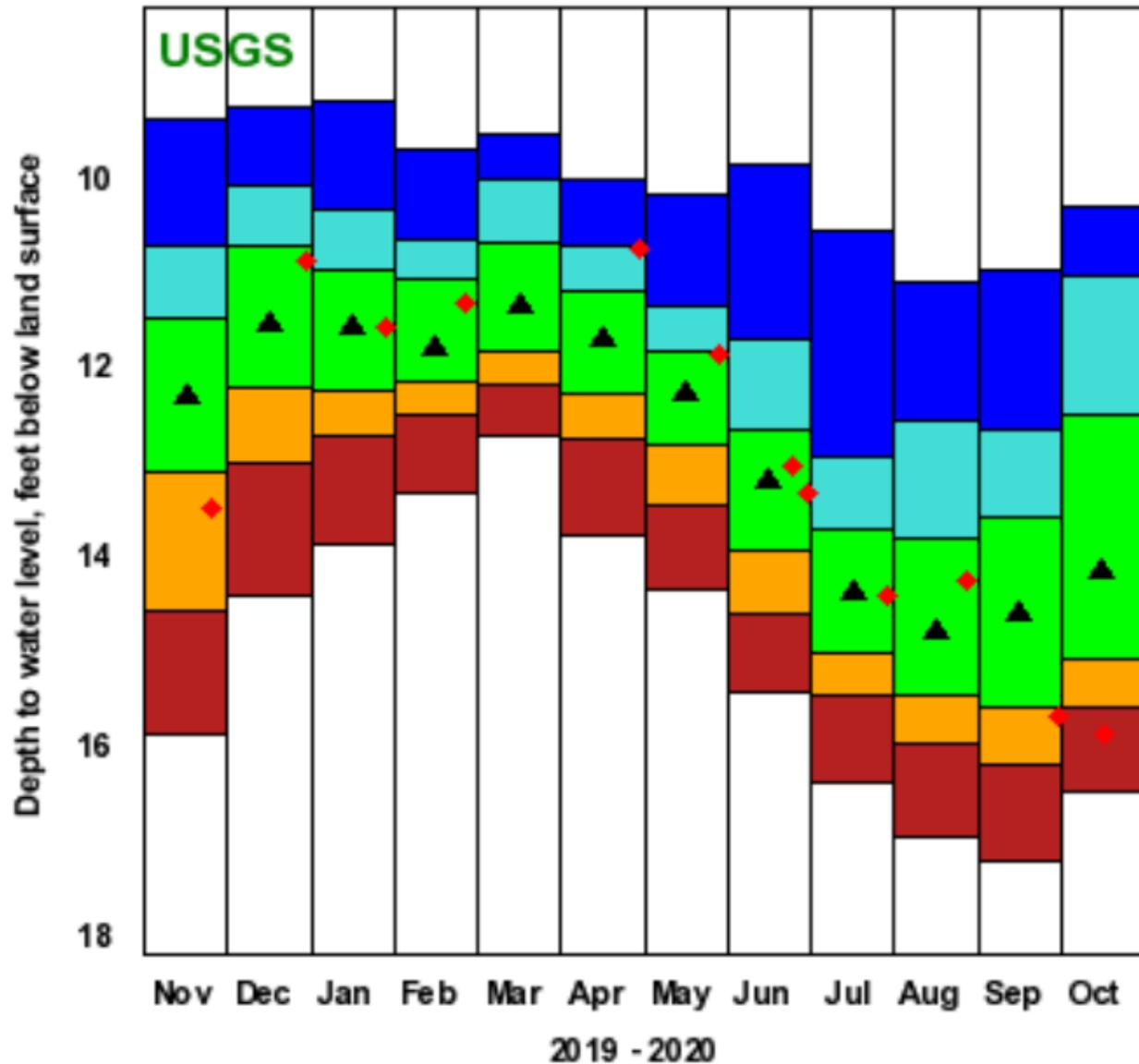
**Note:** The most recent measurement on 10/16/2020 has the following status: 'The site was dry (no water level is recorded).'



Plot created 10/20/20 21:17

Explanation - Percentile Classes





Plot created 10/20/20 21:17

Explanation - Percentile Classes

◆ Data Point

● <10 ● 10-24 ● 25-75 ● 76-90 ● >90

▲ Monthly Median

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# Summary: Streamflow -

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- Based on the State Guide Plan 721
  - Drought advisory calls for three consecutive months of below normal streamflow
  - August to October (through 10/20)
    - August was much below normal statewide (9.29%).
    - September was much below normal statewide (5.82%).
    - October 1 -19 has been much-below normal statewide (7.53%).
    - Oct 13-20 (7-day) has shown improvement with the two rain events on Oct 13 and Oct 16/17 (38.92%).
  - Streamflow recovery/decline will be dependent on the precipitation going forward through October and beyond.

# Summary: Ground Water -

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- Based on the State Guide Plan 721
  - Drought advisory calls for two out of three months of below normal water levels
    - Statewide the trigger –
  - July to September - does meet the trigger for a drought advisory
    - July central west and eastern regions were below normal. Rest of state was normal.
    - August and September were both much-below normal.
  - August to October (though Oct 20)
    - The conditions remain much-below normal statewide.
  - Groundwater recovery/decline will be dependent on the precipitation going forward through October and beyond.

# Questions?

